

VASCULAR INVESTIGATIONS

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➤ Sensitive:

➤ Operator dependent:

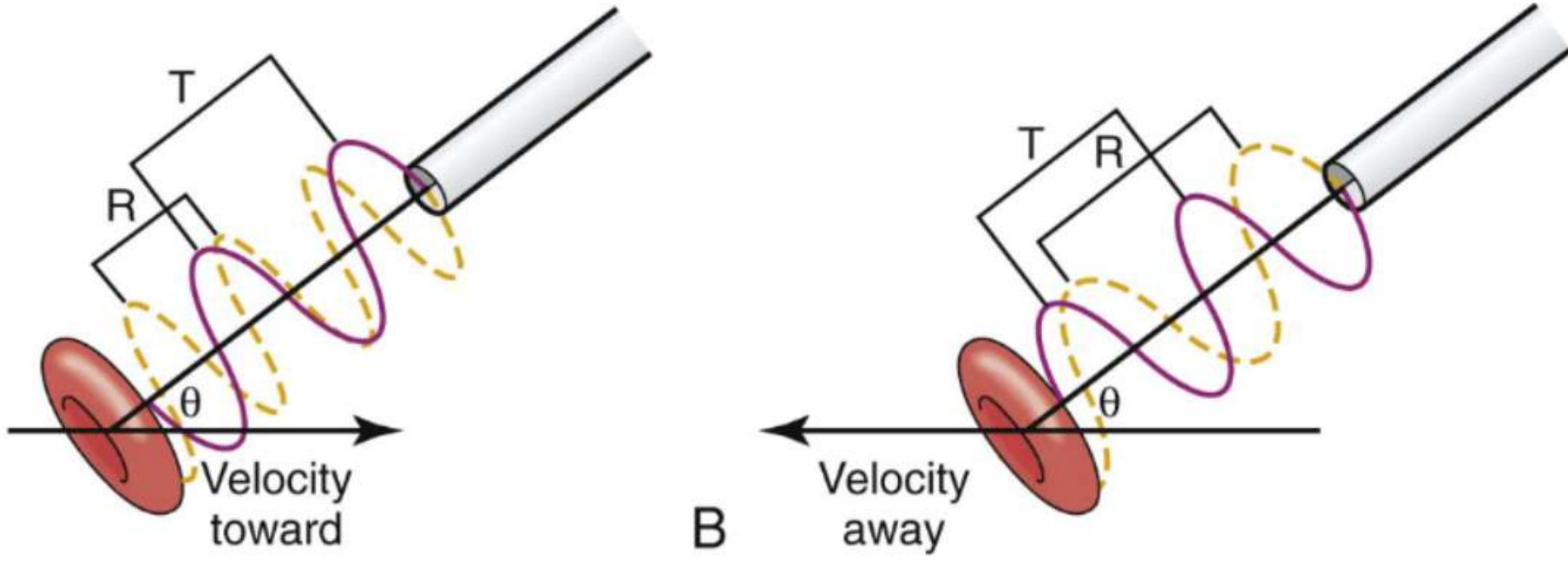
➤ Toxic:

➤ Therapeutic:

HANDHELD DOPPLER



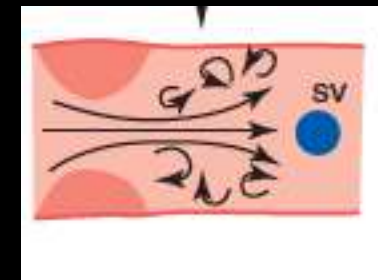
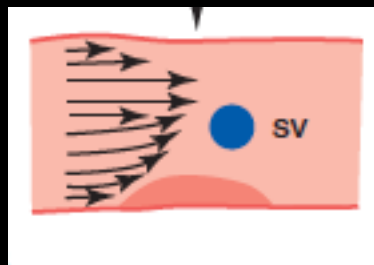
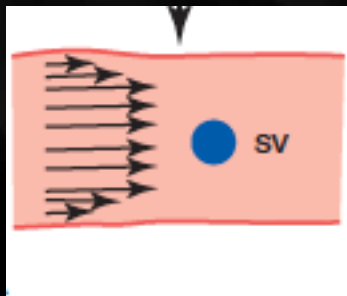
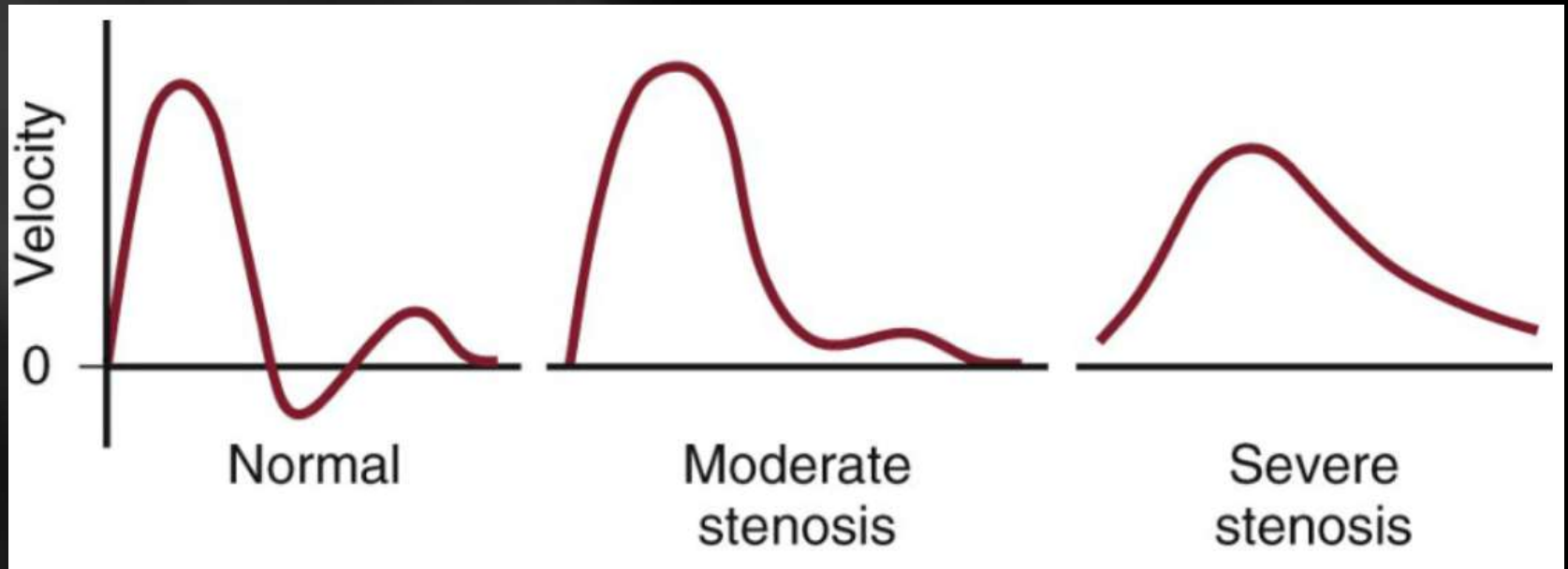
HANDHELD DOPPLER



PPT Note:

The Doppler device compares the frequency of backscattered sound from moving red blood cells with the transmitting frequency to determine the frequency shift, which is proportional to the speed of the flowing blood, the transmitting frequency, and the cosine of the Doppler angle, θ . The drawing shows a Doppler probe transmitting ultrasound at a wavelength T to a red blood cell moving in a direction indicated by an arrow. The red cell is moving toward the probe in (A) and away from the probe in (B). The angle between the ultrasound beam and the direction of red cell velocity is given by θ . The frequency of the ultrasound that is transmitted is the same in both cases (red line). The ultrasound signal that is received (yellow line) has a shorter wavelength (R) in (A) and a longer wavelength in (B).

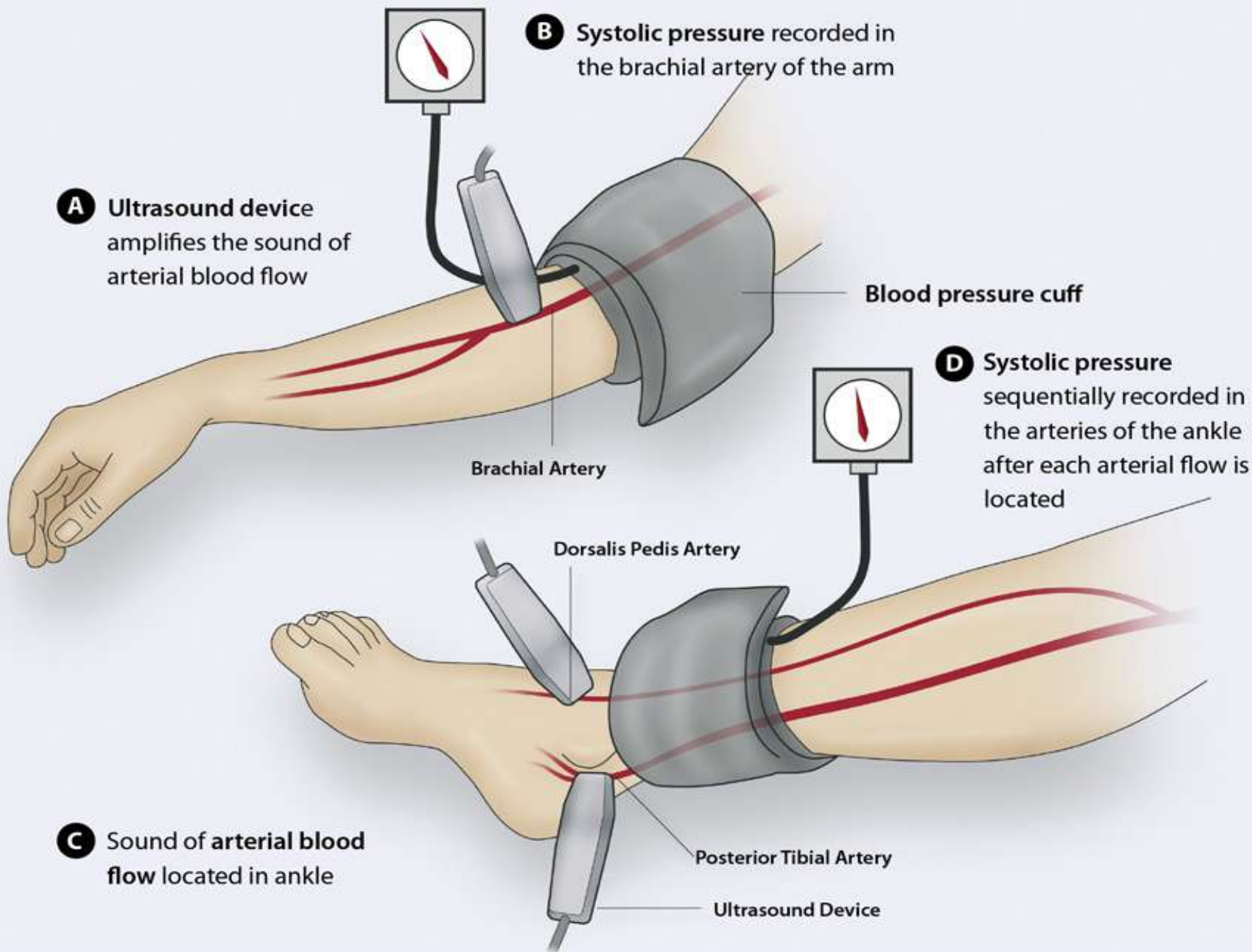
HANDHELD DOPPLER



ANKLE BRACHIAL INDEX



$ABI = \text{ANKLE SBP (PT OR DP)} / \text{HIGHEST ARM SBP}$



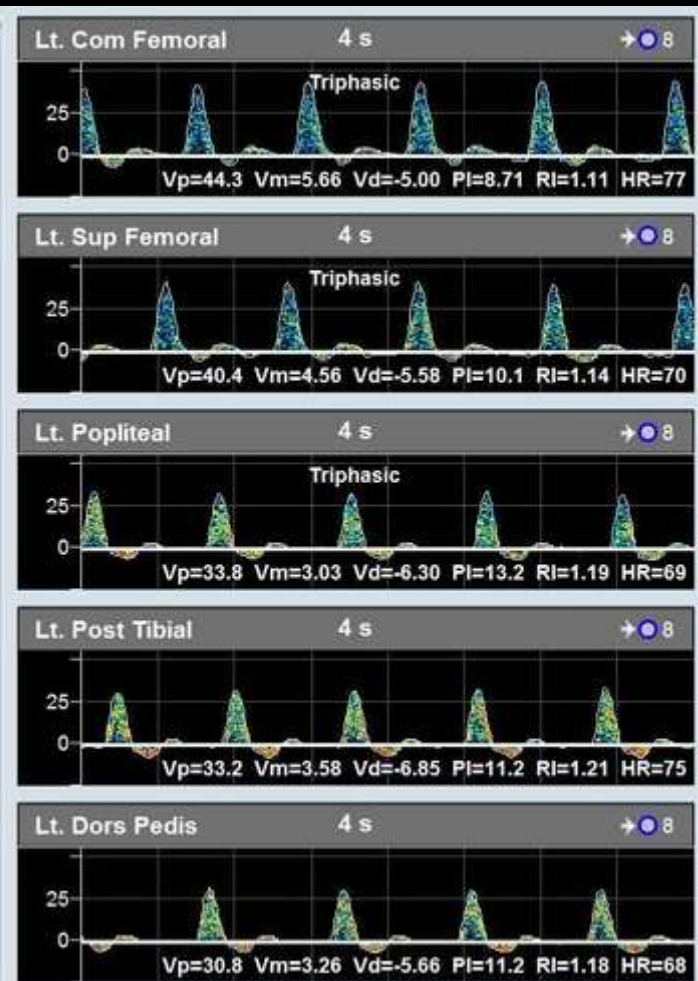
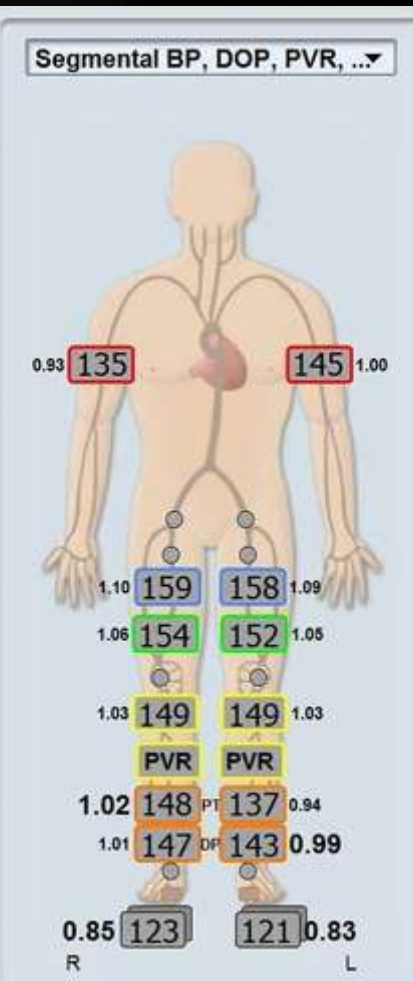
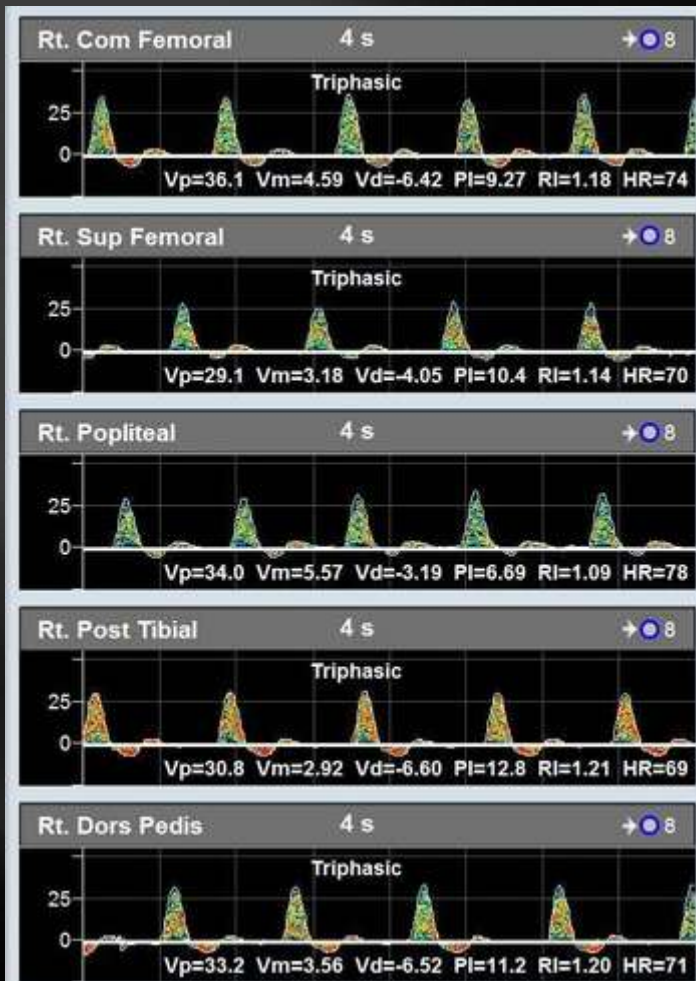
Interpretation of ABI

>1.30	Noncompressible
1.00–1.29	Normal
0.91–0.99	Borderline (equivocal)
0.41–0.90	Mild to moderate peripheral arterial disease
0.00–0.40	Severe peripheral arterial disease

The ABI has limited use in evaluating calcified vessels that are not compressible as in Diabetics

SEGMENTAL PRESSURE





➤ Sensitive: ✓

➤ Operator dependent: ✓✓✓

➤ Toxic: ✗

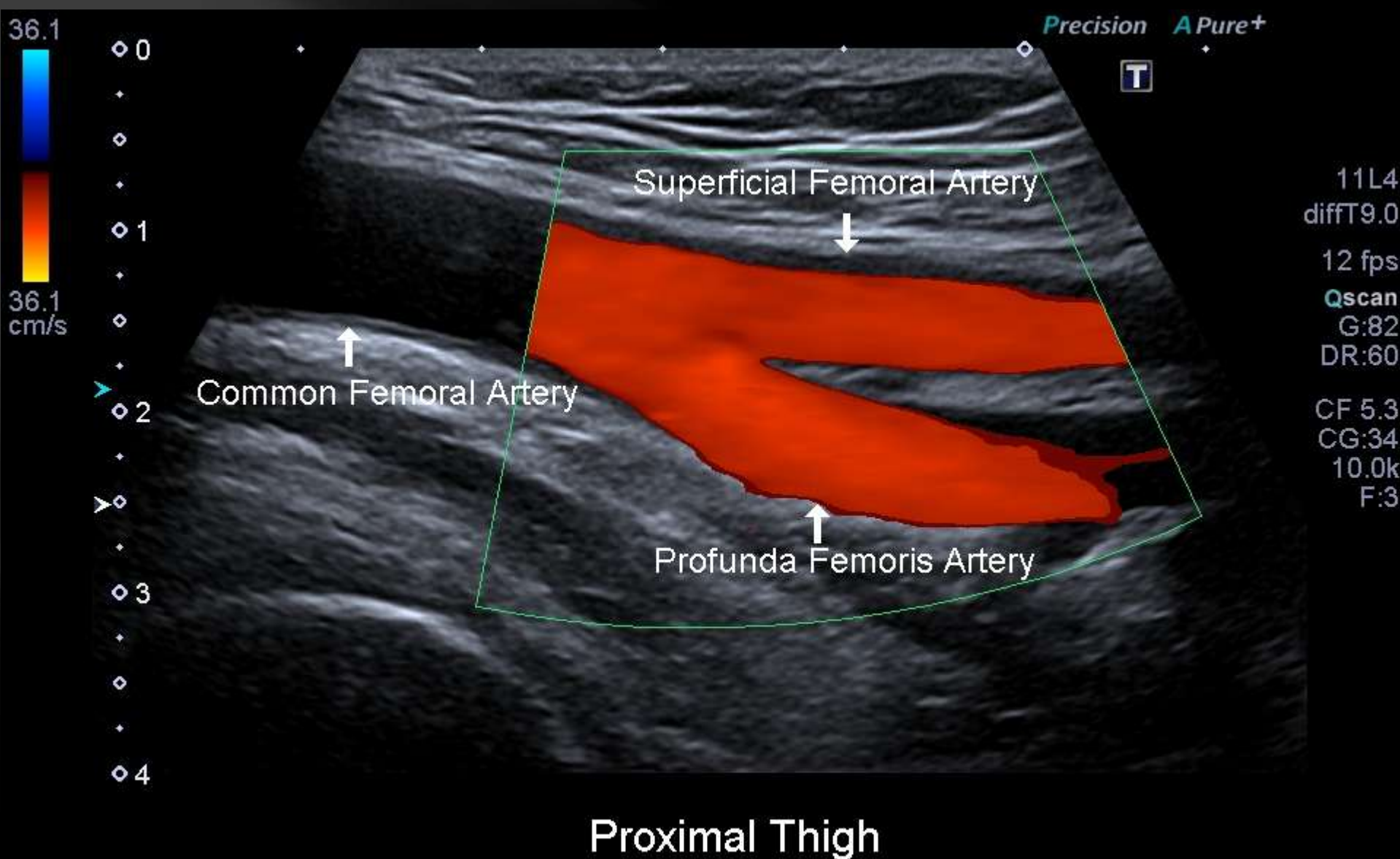
➤ Therapeutic: ✗

DUPLEX ULTRASOUND

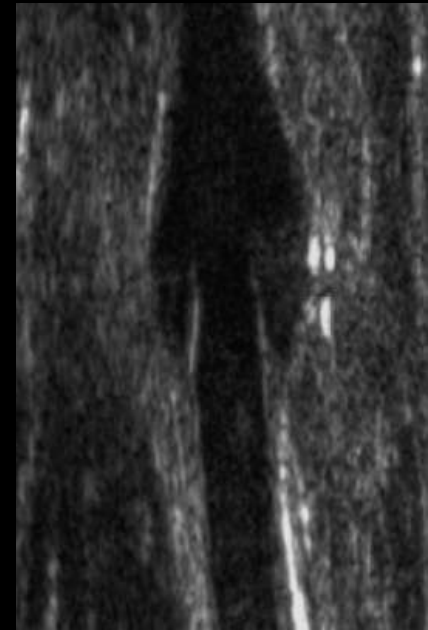
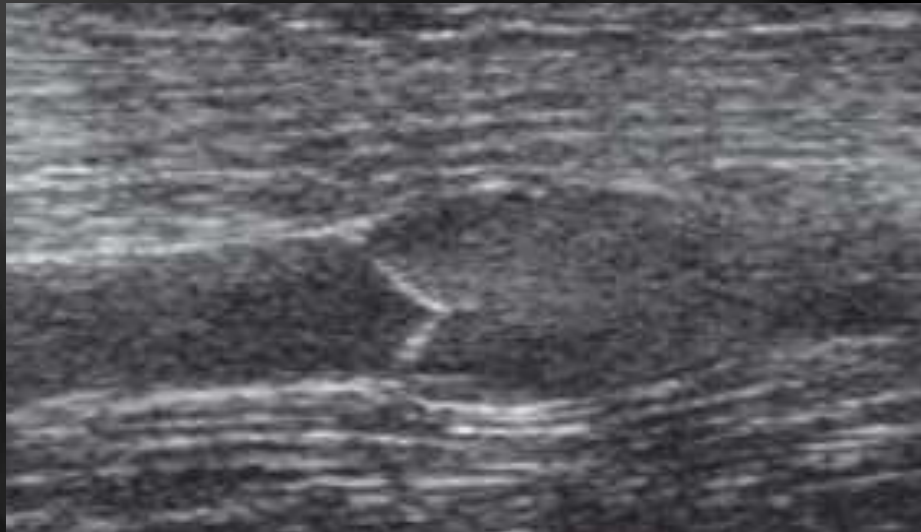
B - mode + Color Doppler



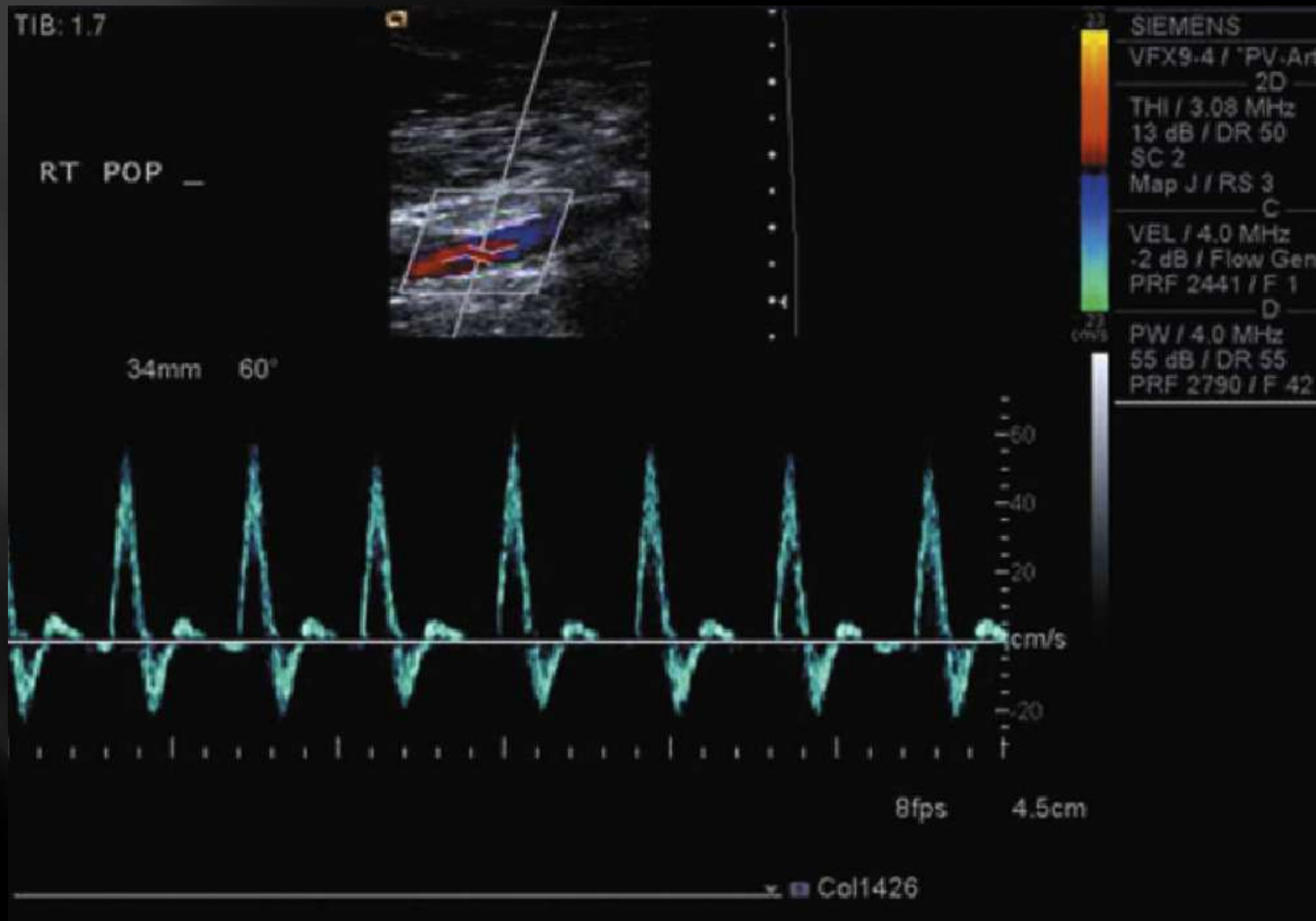
DUPLEX ULTRASOUND



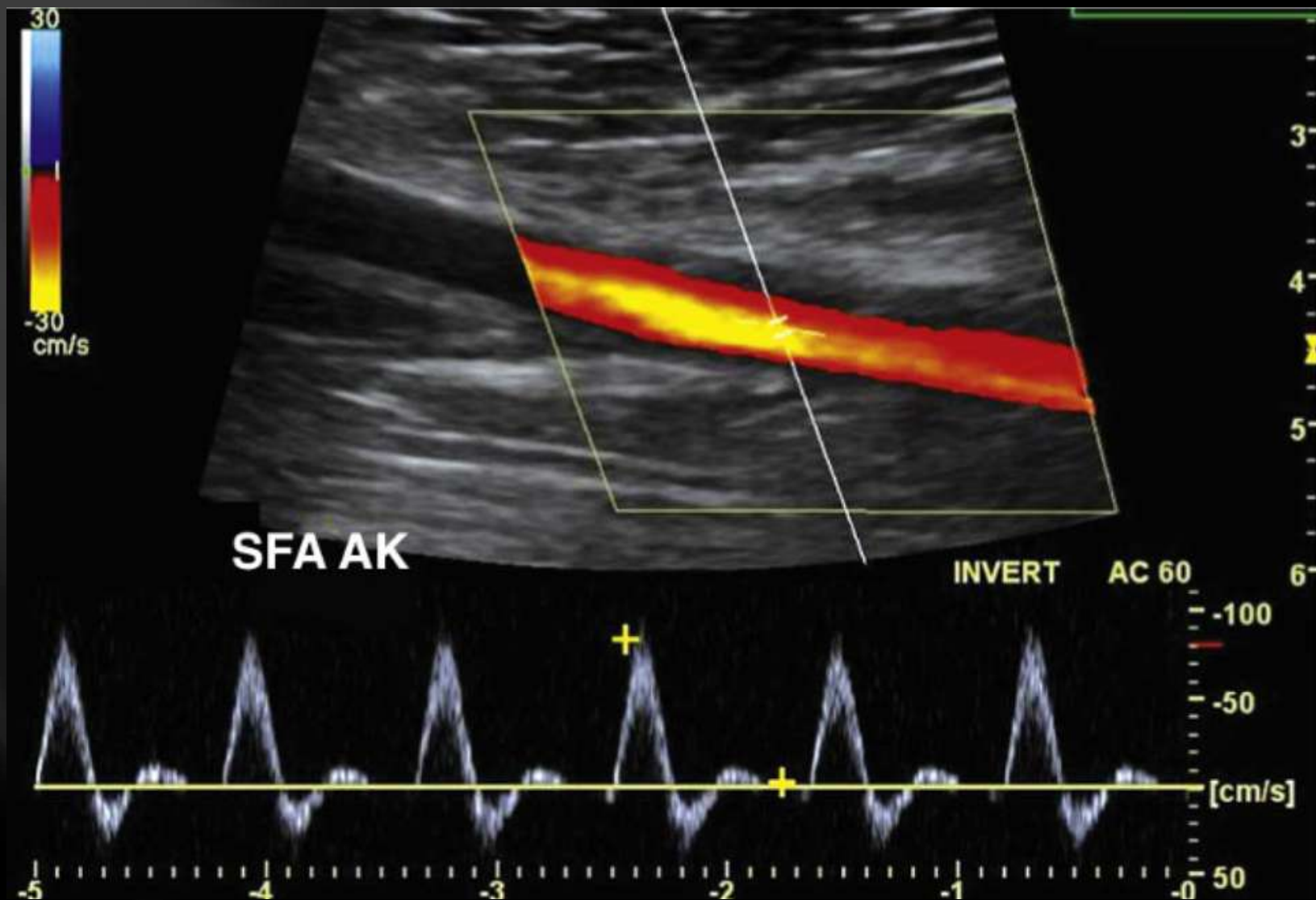
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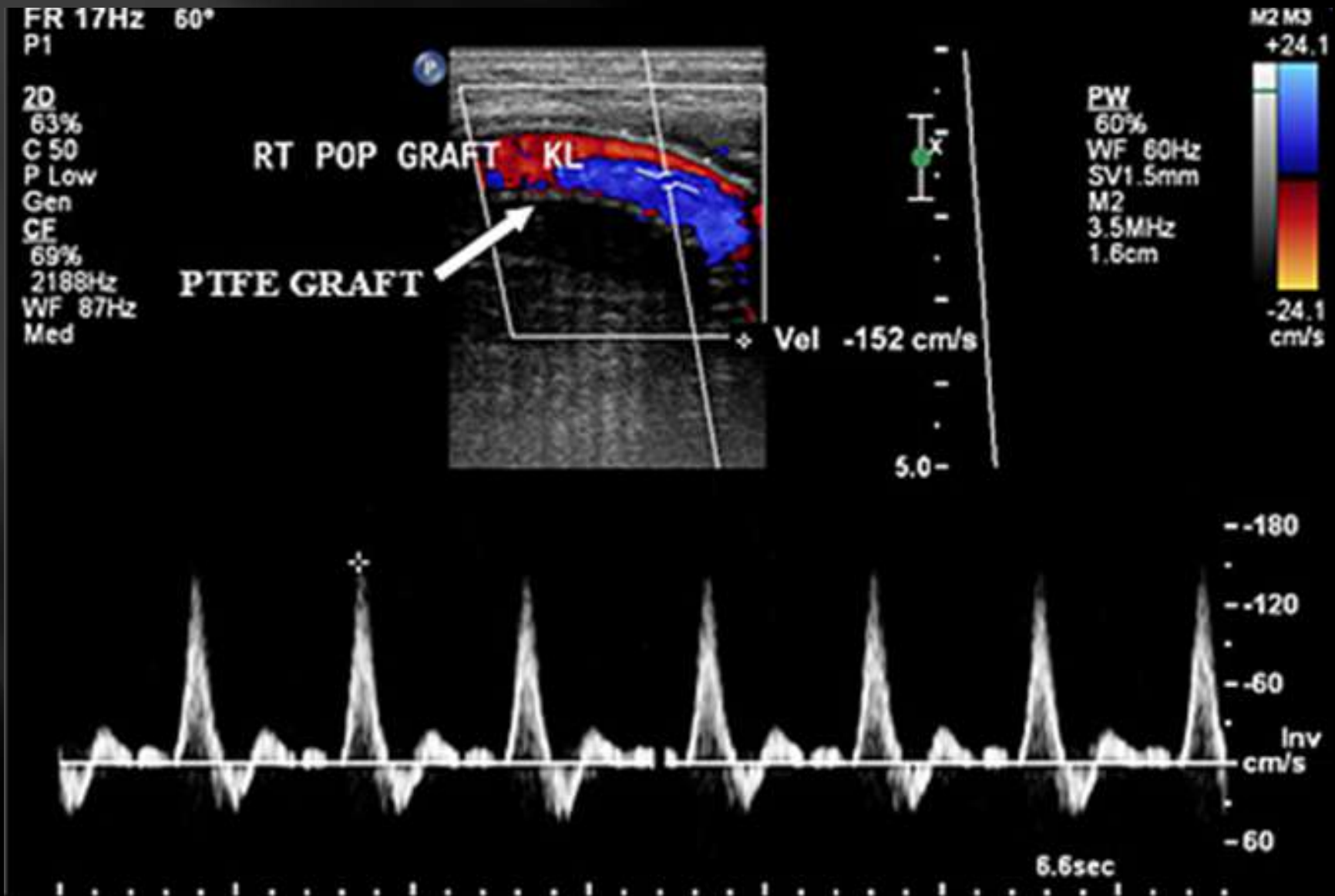
DUPLEX ULTRASOUND



DUPLEX ULTRASOUND



DUPLEX ULTRASOUND



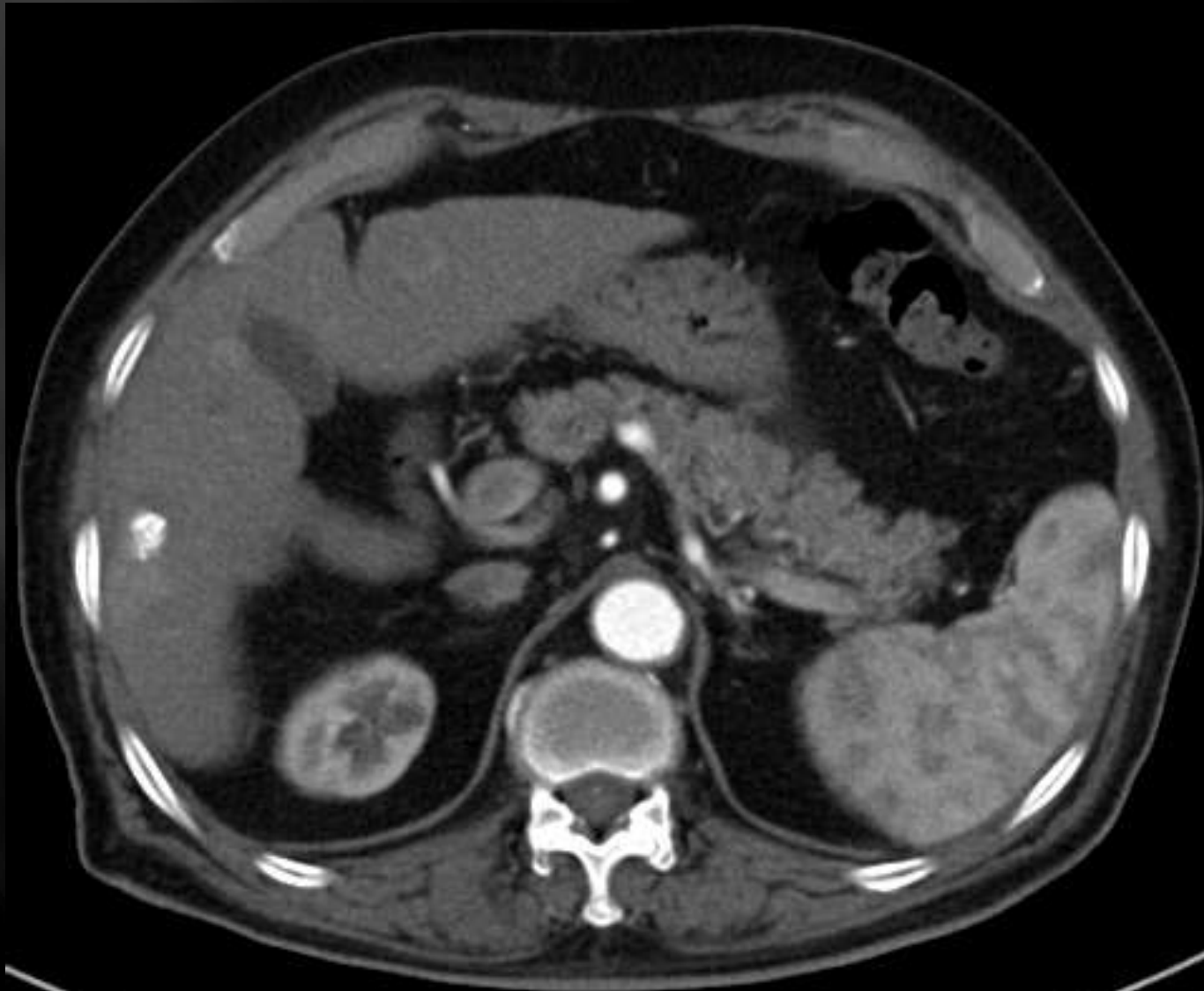
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CT ANGIOGRAM



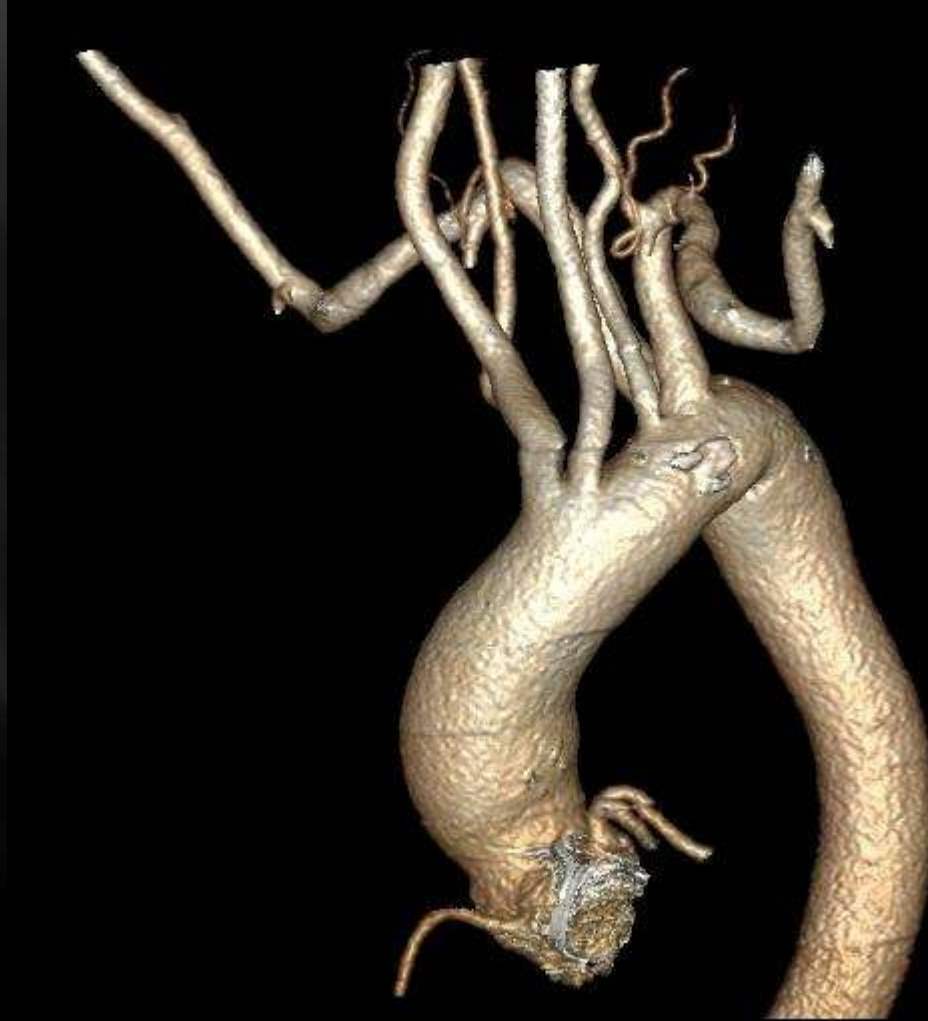
CT ANGIOGRAM



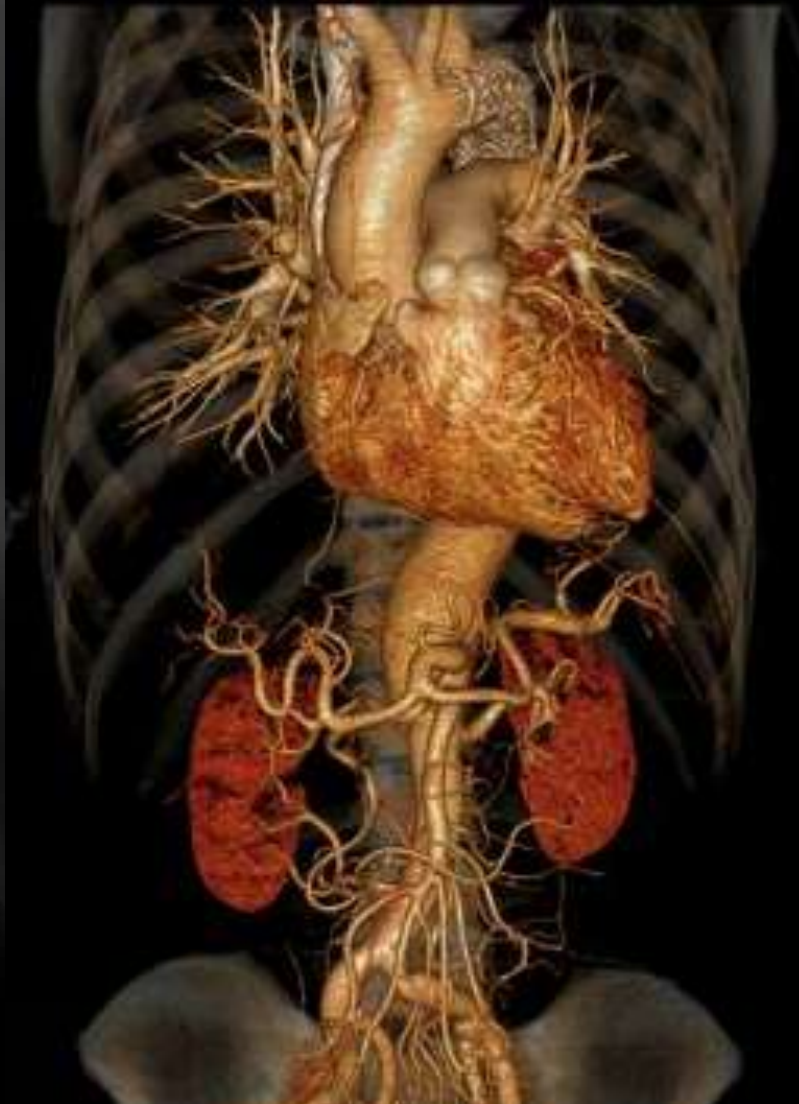
CT ANGIOGRAM



CT ANGIOGRAM



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CT ANGIOGRAM



➤ Sensitive: ✓✓✓✓✓

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➤ Toxic: ✓✓✓

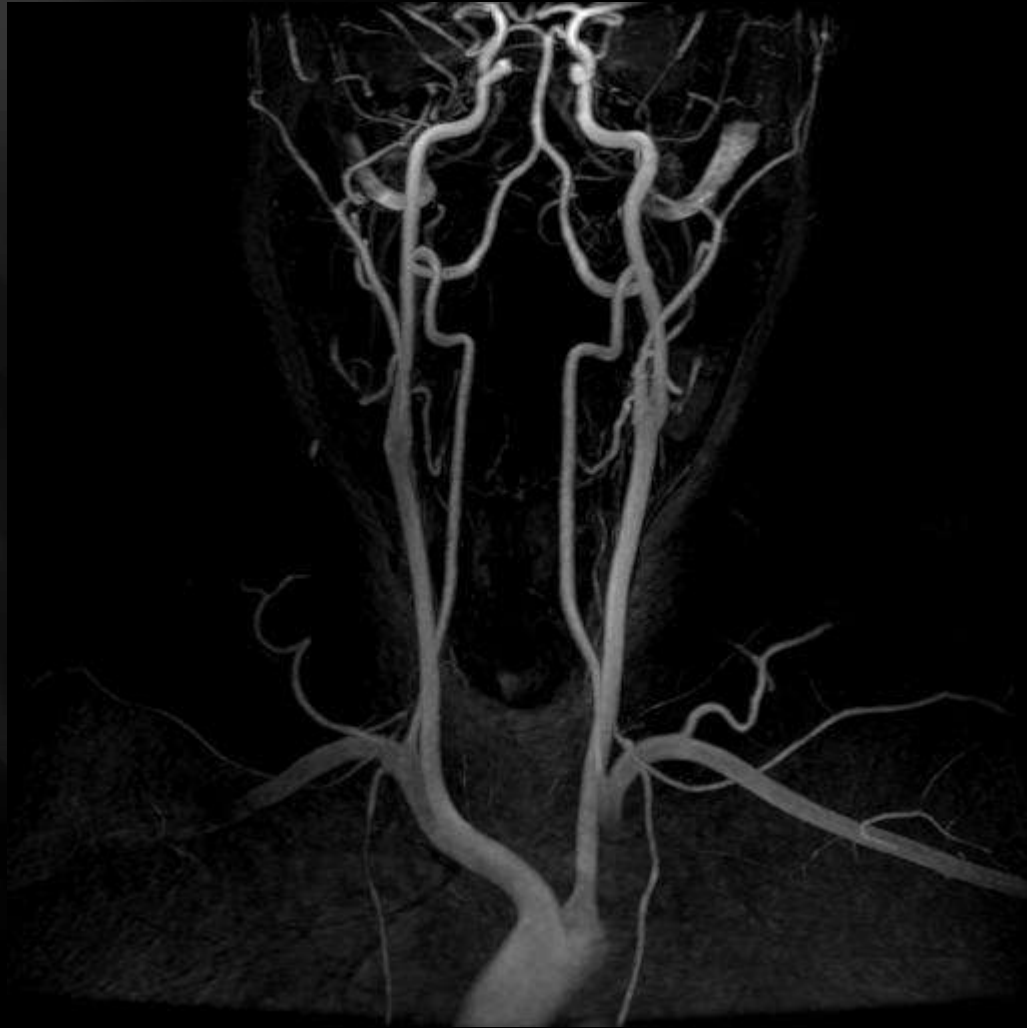
➤ Therapeutic: ✗

MR ANGIOGRAM



PPT Note: gadolinium

MR ANGIOGRAM



➤ Sensitive: ✓✓✓✓

➤ Operator dependent: ✗

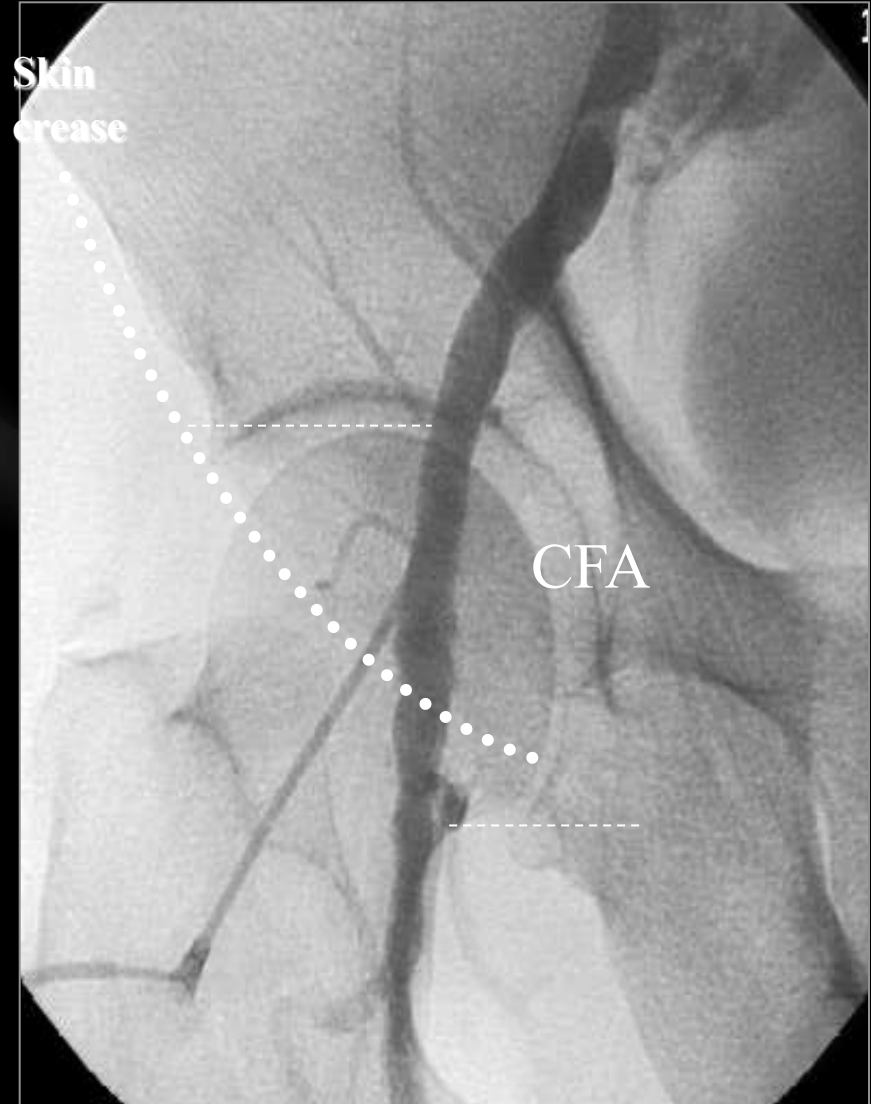
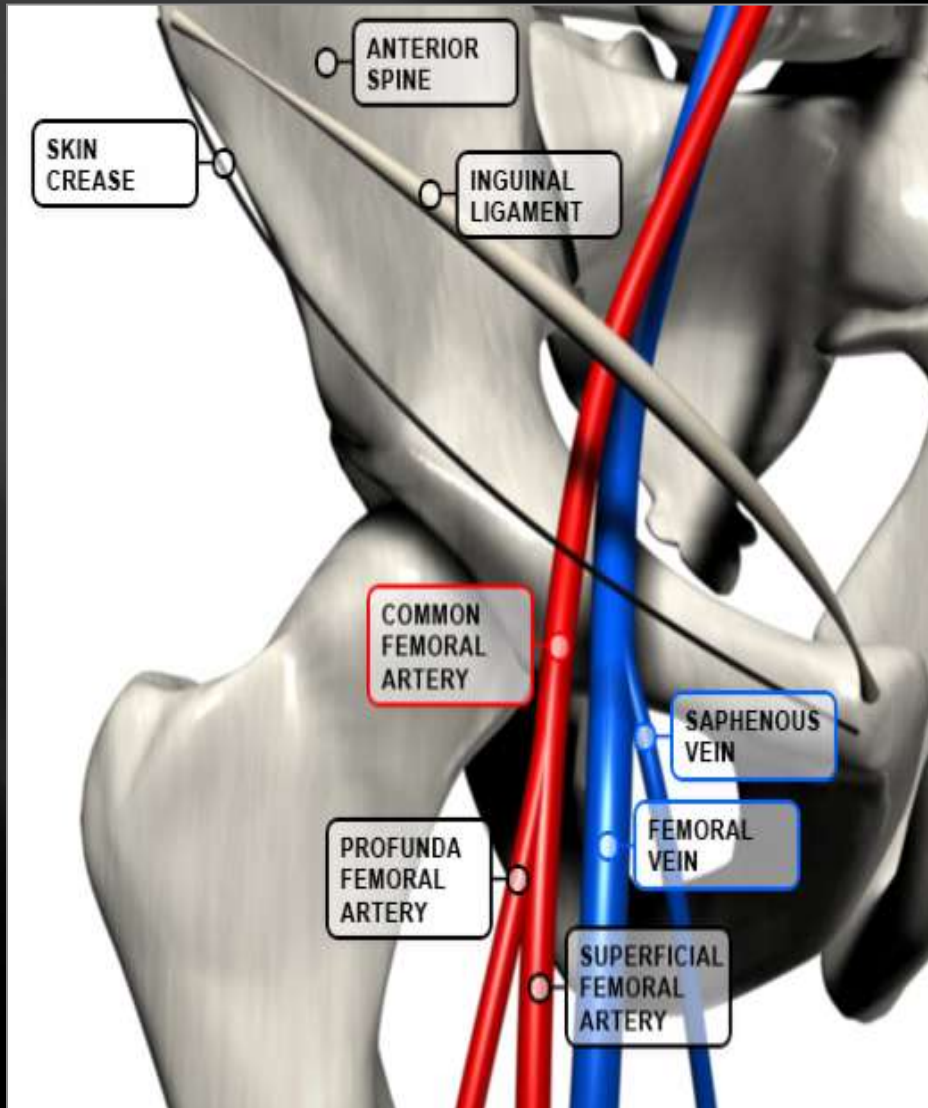
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ANGIOGRAPHY



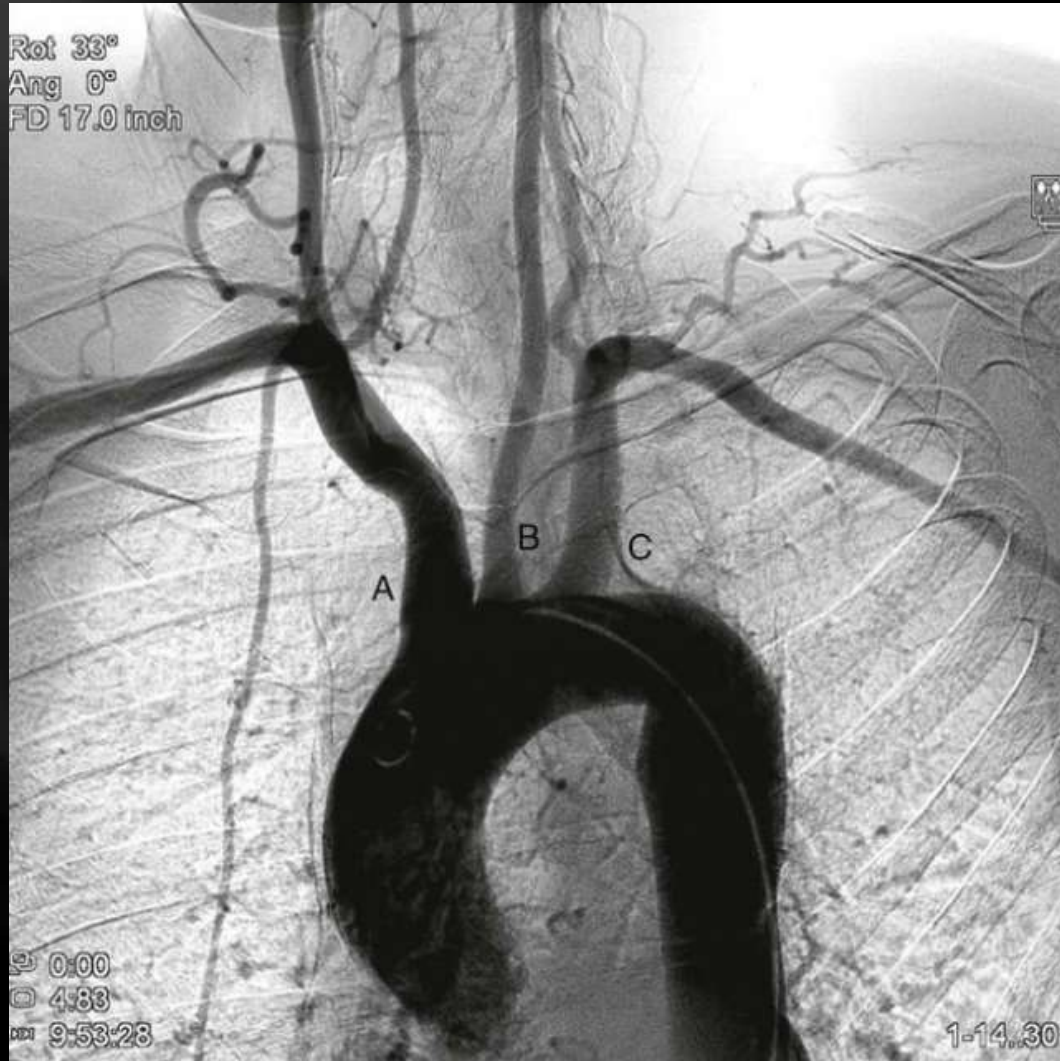
Femoral Artery



ANGIOGRAPHY



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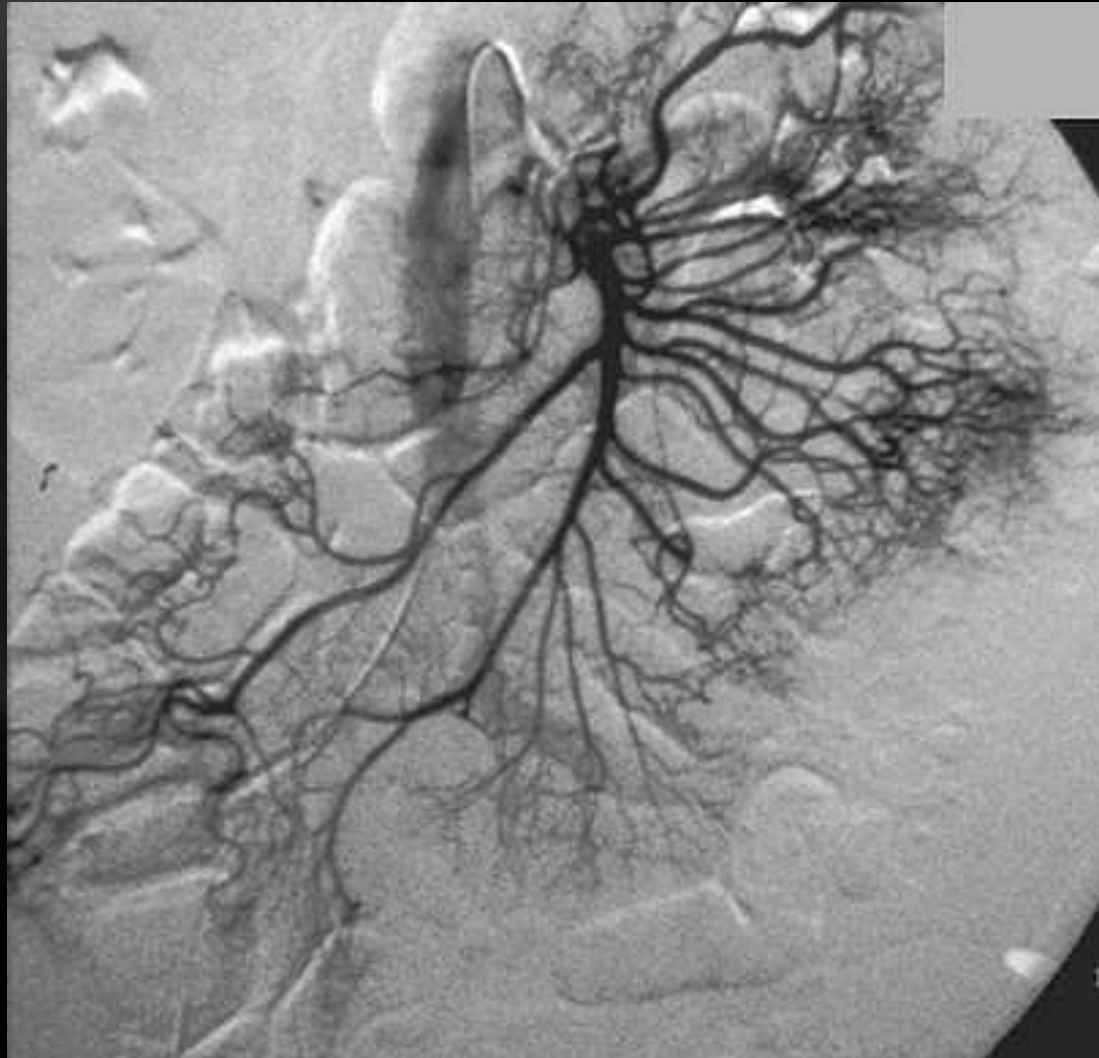
ANGIOGRAPHY



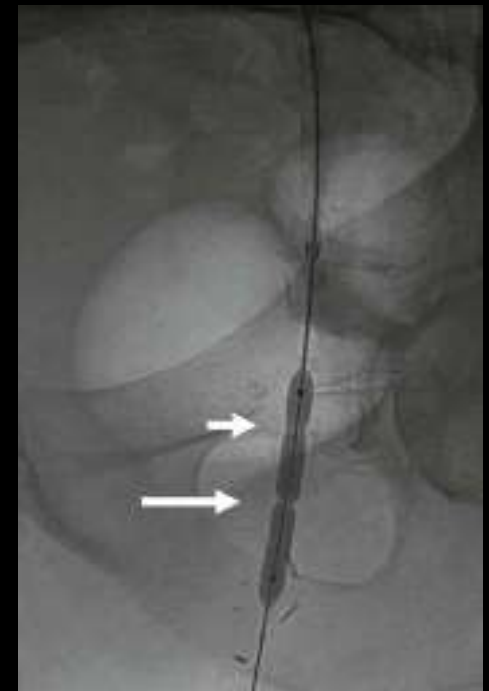
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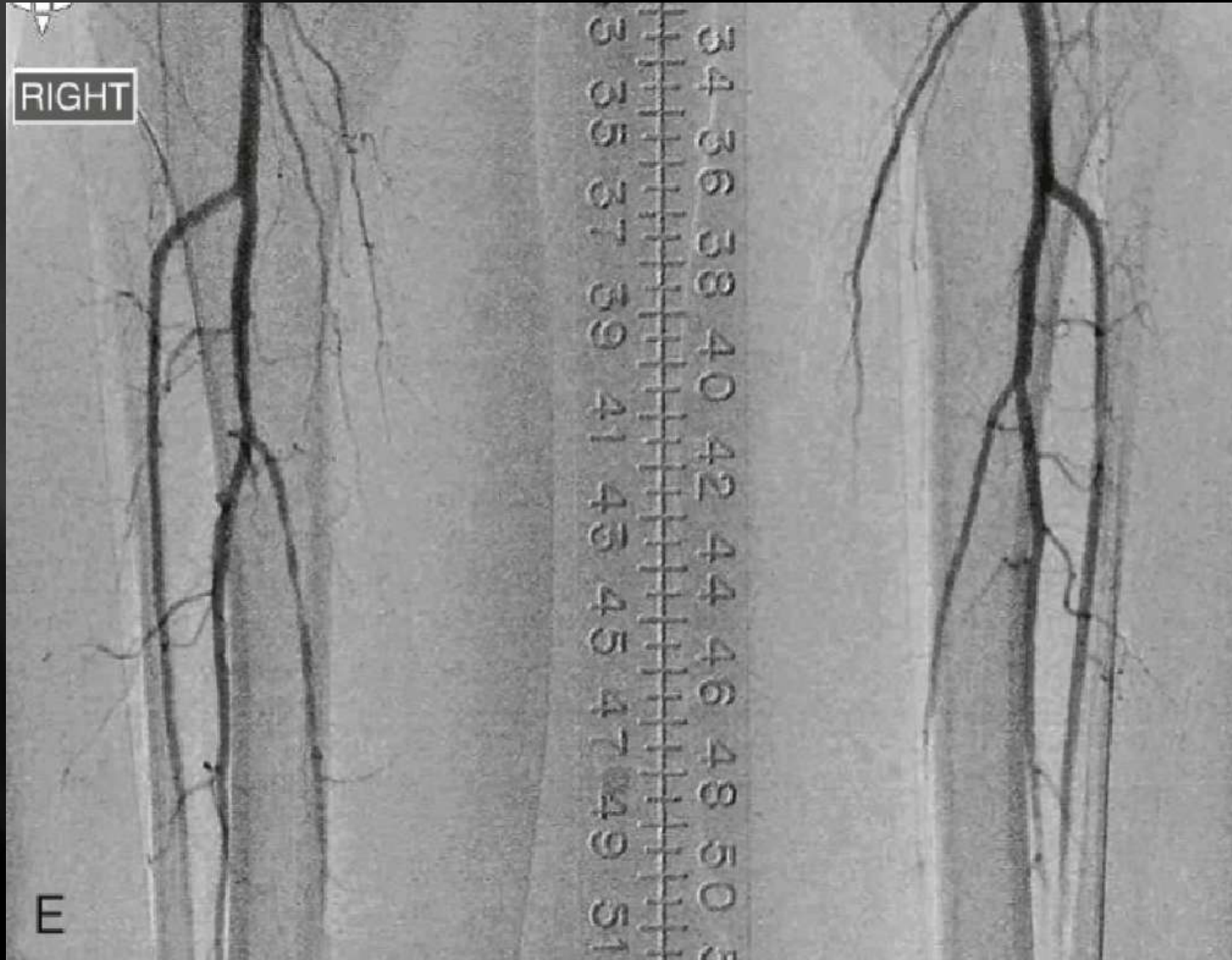
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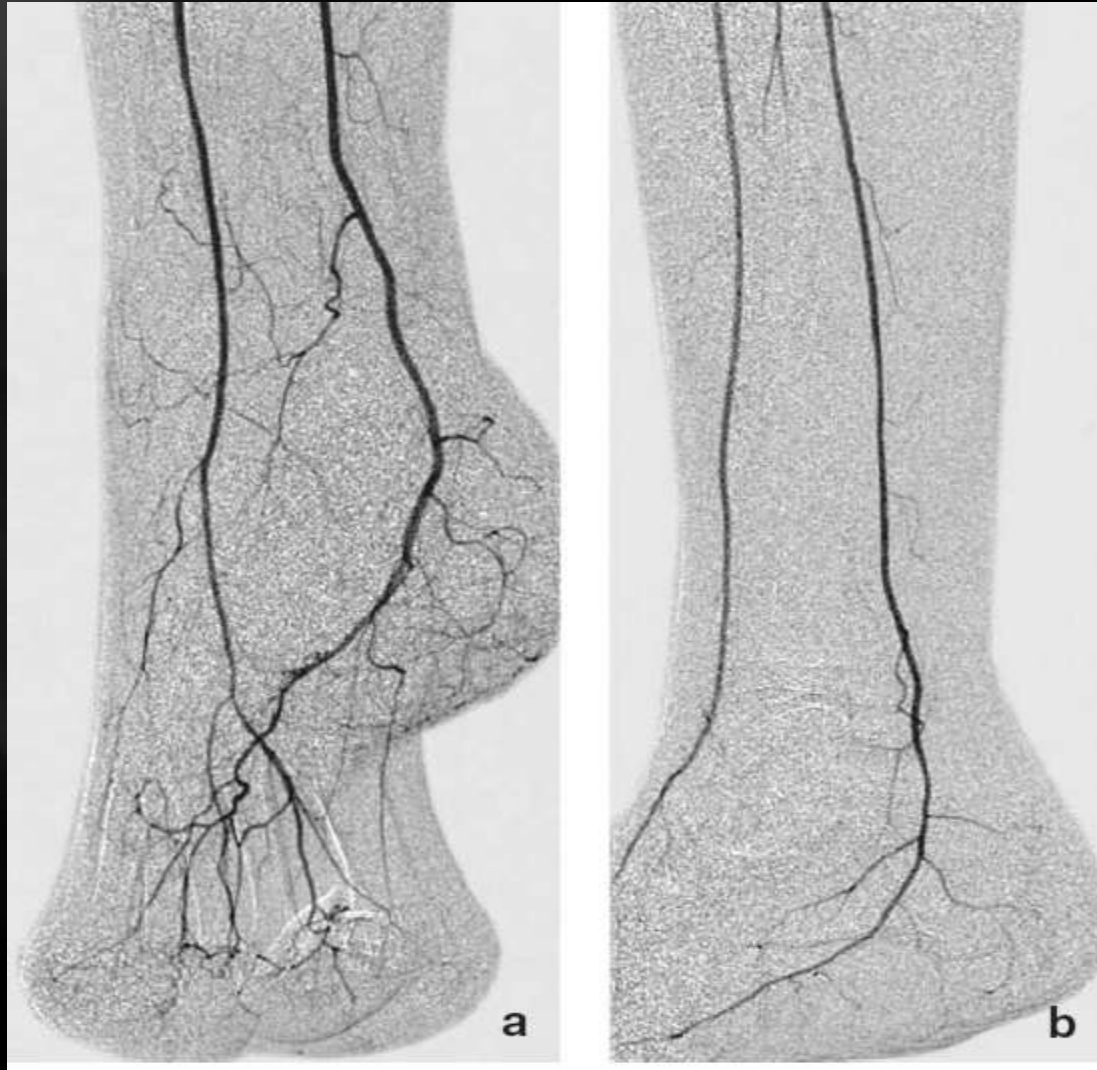
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THANK YOU